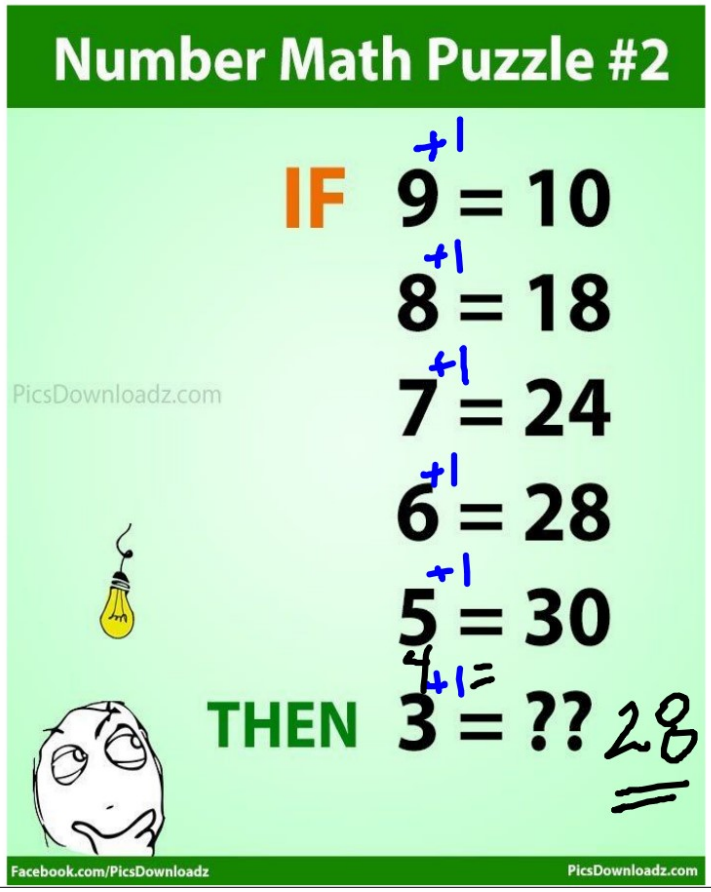
DRILL

① What is the GCF of:

$12x^3y^5$ & $18x^2y^7$

GCF: $6x^2y^5$

②



Factor by Grouping (4 terms)

- Factor out GCF (if exists)
- Group the 1st two terms and factor out its GCF.
- Group the last two terms and factor out its GCF.

Ex: $2x^2y^3 + 4x^2y^2 + 6xy - 3$

$* = 2x^2y^2(y+2) + 3(2xy-1)$

Ex: $3x(y+4) - 2(y+4)$

$= (y+4)(3x-2)$

Ex: $\boxed{5x^2 - 10x} \boxed{+ 3xy - 6y}$

$= 5x(x-2) + 3y(x-2)$

$= (x-2)(5x+3y) = 5x^2 + 3xy - 10x - 6$

$$6ab + 4b - 21a - 14$$

$$= 2b(3a + 2) - 7(3a + 2)$$

$$= \boxed{(3a + 2)(2b - 7)}$$

1 $x^3 + 3x^2 + 2x + 6$

TRY IT

$x^2(x+3) + 2(x+3)$

$(x+3)(x^2+2)$

② $(x^4 + 3x^3) + (5x + 15)$

$x^3(x+3) + 5(x+3)$

$(x+3)(x^3+5)$

③ $x^4 + 3x^3 + 5x + 15$

$x^3(x+3) + 5(x+3)$

$(x+3)(x^3+5)$

4

$$\underline{x^5 + 2x^2} + \underline{4x^3 + 8}$$

$$x^2(\underline{\underline{x^3+2}}) + 4(\underline{\underline{x^3+2}})$$

$$(x^3+2)(x^2+4)$$

Ex:

$$(8x^3 - 4x^2)(-4x + 2)$$

$$= 4x^2(2x - 1) - 2(2x - 1)$$

$$= (2x - 1)(4x^2 - 2)$$